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REMARKS

Claims 1-42 are currently pending in the subject application and are presently under consideration. Claims 1, 19, 22, and 36 have been amended herein. Claims 9-11 and 23 have been cancelled herein. A marked-up version of claim amendments made herein is found on pages 3-8 of this Reply.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Oath Declaration

The Examiner asserts that prior application number 09/163,933 claimed under 35 USC §119 was filed September 28, 1998, and that the date should be corrected.

Applicants' representative respectfully directs the Examiner to the Reply to Notice to File Missing Parts Dated October 30, 2001, which contained a signed and executed oath/declaration. In that oath/declaration, application number 09/163,933 is listed as U.S. Patent No. 6,289,735, as it had issued by the time the Reply to Notice to File Missing Parts was submitted. U.S. Patent No. 6,289,735 is listed as having been filed on September 28, 1998. The Examiner will also note that the filing date of the subject patent application is correct as recited in the section entitled "Cross-Reference to Related Applications," submitted on January 17, 2002 via Preliminary Amendment.

In view of at least the above, it is believed that the recited application date of the subject related application is accurate and does not require correction.

II. Objections to Claims 19 and 36

Claims 19 and 36 are objected to for certain informalities. Applicants' representative appreciates the Examiner's comments regarding the subject informalities, which have been corrected herein in accordance with the Examiner's suggestions. Therefore, it is respectfully requested that this objection be withdrawn.

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III. Rejection of Claims 1-3, 10, 18-24, 27-30, 35, and 36 Under 35 U.S.C. §102(e)

Claims 1-3, 10, 18-24, 27-30, 35, and 36 stand rejected under 35 U.S.C. §102(e) as being anticipated by Gotou *et al.* (U.S. 4,933,834). Withdrawal of this rejection is respectfully requested for at least the following reasons. Gotou *et al.* does not disclose each and every aspect of the present invention as set forth in the subject claims.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The present invention relates to systems and methods for controlling and diagnosing the health of a machine, and more particularly, to systems and methods for controlling and diagnosing motorized systems according to vibration, pressure, temperature, speed, and/or current analysis. Independent claim 1 has been amended to recite "A method for controlling a motorized system comprising: measuring an attribute of the motorized system, *the attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system*; diagnosing a health of the motorized system based on the measured attribute; providing a diagnostics signal based on the diagnosed health; and providing a control signal based on the diagnosed health." Independent claims 19, 22, and 36 have been amended to recite similar aspects. Such aspects of the invention were previously and variously recited in claims 9, 10, 11, and 23, which have been cancelled herein. Further support for the amendments to the claims can be found throughout the specification. For example, "The diagnostics may be performed using one or more measured system parameters, such as *vibration, pressure, temperature, speed, power, current, or the like*. Frequency spectral analysis may also be employed in order to detect and/or diagnose component wear, degradation, failure, faults, and the like. For example, one or more signals from system sensors may be processed by a diagnostics system and analyzed in the frequency domain, whereby such *adverse conditions may be*

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identified and/or predicted. The diagnostics system may further provide one or more diagnostics signals indicative of the health of a motorized system, which may then be provided to an associated controller, whereby the operation of the motorized system may be modified.” (Page 4, lines 10-18.) Gotou *et al.* does not describe such claimed aspects of the subject invention.

The Examiner contends that the speed detector 12B of Gotou *et al.* discloses a “measured attribute comprising at least one of vibration, pressure, speed, and temperature.” Applicants’ representative respectfully disagrees. Nowhere in Figure 1 or the related text does Gotou *et al.* discuss measuring any attribute other than rotational speed of a motor. Gotou *et al.* fails to describe measuring temperature, current, pressure, and/or vibration in order to diagnose the health of a motorized system in order to generate feedback information for control of the system. Rather, Gotou *et al.* merely discusses a *speed* detector 12B, which “generates a new detected code corresponding to the current speed of the DC motor 11A.” (Column 6, lines 18-20.)

In view of at least the above, it is readily apparent that Gotou *et al.* does not anticipate or make obvious applicants’ invention as set forth in independent claims 1, 19, 22, and 36 (and claims 2-3, 18-21, 24, 27-30, and 35 which depend respectively therefrom.) Therefore, this rejection should be withdrawn.

IV. Rejection of Claims 1, 19-21, 36-38, 40, and 41 Under 35 U.S.C. §102(e)

Claims 1, 19-21, 36-38, 40, and 41 stand rejected under 35 U.S.C. §102(e) as being anticipated by Madhavan (U.S. 6,004,017). Withdrawal of this rejection is respectfully requested for at least the following reasons. Madhavan does not disclose each and every aspect of the present invention as set forth in the subject claims.

Independent claim 1 has been amended to recite “measuring an attribute of the motorized system, *the attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system*; diagnosing a health of the motorized system based on the measured attribute; providing a diagnostics signal based on the diagnosed health; and providing a control signal based on the diagnosed health.”

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Independent claims 19 and 36 have been amended to recite similar aspects. Madhavan fails to disclose such claimed aspects as set forth in the subject claims.

Madhavan merely discloses an algorithm for predicting or avoiding an episode of "chatter" in a machining tool. Chatter is a "self-excited relative vibration between the workpiece and the cutting tool in common machining processes such as turning processes on a lathe..." (Column 1, lines 30-33.) Madhavan does not disclose measuring current, pressure, temperature, *etc.* to facilitate diagnosing a health state of a motorized system as set forth in the subject independent claims.

Thus, Madhavan fails to anticipate or make obvious applicants' invention as set forth in independent claims 1, 19, and 16 (and claims 20-21, 37-38, and 40-41, which depend respectively there from). This rejection should be withdrawn.

V. **Rejection of Claims 19-21 Under 35 U.S.C. §102(b)**

Claims 19-21 stand rejected under 35 U.S.C. §102(b) as being anticipated by Grayson *et al.* (U.S. 5,111,531). This rejection should be withdrawn for at least the following reasons. Grayson *et al.* does not disclose each and every aspect of the present invention as set forth in the subject claims.

Independent claim 19 has been amended herein to recite "means for measuring an attribute of the motorized system, *the measured attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system...*" The specification is replete with support for the subject amendment: for example, "Beginning at 4, the exemplary method 2 comprises measuring an attribute at 5, wherein the attribute is associated with a motorized system (*e.g.*, motorized pump, fan, conveyor system, compressor, gear box, motion control device, screw pump, and mixer, hydraulic or pneumatic machine, or the like). The *attribute measured at 5 may comprise, for example, vibration, pressure, current, speed, and/or temperature* associated with the motorized system." (Page 13, lines 9-14.) Grayson *et al.* does not disclose such aspects as set forth in the subject claims.

Grayson *et al.* discusses employing a neural network (*e.g.* a trainable network) to permit a set point value of a controlled variable to be altered in order to permit a

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predicted value of an uncontrolled variable to more closely align with a desired value of the uncontrolled variable. Put another way, Grayson *et al.* alters values of directly controlled variables in order to induce changes in indirectly controlled variables, so that the values of the indirectly controlled variables approach a desired value. (See generally, Abstract. See also Column 2, line 52-Column 3, line 48.) Thus Grayson *et al.* merely discloses a simple feedback loop. However, nowhere in the Examiner's cited sections or otherwise does Grayson *et al.* even mention measuring pressure, current, vibration, speed, etc. of a motorized system, let alone using such measured attributes to diagnose a health state of the system.

In view of the foregoing, it is respectfully submitted that Grayson *et al.* fails to anticipate or make obvious the subject invention as set forth in independent claim 19 (and claims 20 and 21, which depend respectively there from). Therefore, withdrawal of this rejection is respectfully submitted.

VI. Rejection of Claims 4-9, 12-14, 25, 26, and 42 Under 35 U.S.C. §103(a)

Claims 4-9, 12-14, 25, 26, and 42 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gotou *et al.* (U.S. 4,933,834) in view of Hays *et al.* (6,260,004). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Gotou *et al.* nor Hays *et al.*, alone or in combination, teach or suggest all of the claimed aspects of the present invention as set forth in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must both be found in the prior art and not based on applicant's disclosure*. See

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In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Claims 4-8, 12-14, 25, 26, and 42 depend directly or indirectly from independent claims 1, 22, and 36. Claim 9 has been cancelled herein. As discussed in Section II above, Gotou *et al.* does not teach or suggest a “*measured attribute [that] comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system*” as recited in independent claims 1, 22, and 36. Hays *et al.* fails to overcome the deficiencies of Gotou *et al.* with respect to the subject independent claims.

Therefore, it is respectfully submitted that neither Gotou *et al.* nor Hays *et al.*, alone or in combination, make obvious applicants’ invention as set forth in independent claims 1, 22, and 36 (and claims 4-9, 12-14, 25, 26, and 42, which depend respectively there from). This rejection should be withdrawn.

VII. Rejection of Claim 11 Under 35 U.S.C. §103(a)

Claim 11 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gotou *et al.* (U.S. 4,933,834). Withdrawal of this rejection is respectfully requested for at least the following reasons. Claim 11 has been cancelled herein. Therefore, the rejection of claim 11 is moot.

VIII. Rejection of Claims 15-17, and 31-34 Under 35 U.S.C. §103(a)

Claims 15-17 and 31-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gotou *et al.* (U.S. 4,933,834) in view of Edison *et al.* (5,586,305). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Gotou *et al.* nor Edison *et al.*, alone or in combination, teach or suggest the present invention as set forth in the subject claims.

Claims 15-17 and 31-34 depend from independent claims 1 and 22 respectively. As discussed above in Section II, Gotou *et al.* fails to teach or suggest a “*measured attribute [that] comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system*” as set forth in independent claims 1 and 22. Edison *et*

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al. fails to overcome the deficiencies of Gotou *et al.* with respect to the subject independent claims.

In view of the above comments, it is respectfully submitted that the combination of Gotou *et al.* and Edison *et al.* does not make obvious the subject invention as recited in independent claims 1 and 22 (and claims 15-17 and 31-24 which respectively depend there from). Therefore, this rejection should be withdrawn.

IX. Rejection of Claim 39 Under 35 U.S.C. §103(a)

Claim 39 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Madhavan (U.S. 6,004,017). Withdrawal of this rejection is respectfully requested for at least the following reasons. Claim 39 depends from independent claim 36, which, as discussed above in Section III, is not made obvious by Madhavan.

Accordingly, this rejection should be withdrawn.

X. Rejection of Claim 42 Under 35 U.S.C. §103(a)

Claim 42 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Madhavan (U.S. 6,004,017) in view of Hays *et al.* (6,260,004). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Madhavan nor Hays *et al.*, alone or in combination, teach or suggest the present invention as set forth in the subject claim.

Claim 42 depends from independent claim 36, which is not made obvious by Madhavan, as discussed in Section III above. Hays *et al.* fails to overcome the deficiencies of Madhavan with respect to independent claim 36. Therefore, it is respectfully submitted that this rejection should be withdrawn.

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CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

AMIN & TUROCY, LLP



Himanshu S. Amin
Reg. No. 40,894

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731